

In re Patent Application of:
SMITH
Serial No. 09/441,709
Filed: November 16, 1999

In the Claims:

Claims 1-64 (Cancelled).

65. (Currently Amended) A method for processing a video data stream in an electronic imaging system comprising a memory, said video data stream comprising a series of pixel values corresponding to pixel sites in the electronic imaging system, the method comprising:

filtering the video data ~~steam~~ stream in real time for correcting/modifying defective pixel values, the filtering comprising

filtering pixel values not stored in the memory using a first filtering algorithm,

identifying defective pixel values,

storing locations of the defective pixel values in the memory, and

filtering the defective pixel values stored in the memory using a second filtering algorithm.

66. (Previously Presented) A method according to Claim 65, wherein the filtering comprises filtering each pixel value based on a plurality of adjacent pixel values.

67. (Previously Presented) A method according to Claim 66, wherein the filtering comprises filtering each pixel value using a current pixel value as part of a data set including the plurality of adjacent pixel values for determining whether to correct/modify the current pixel value and how to correct/modify the current pixel value.

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68. (Previously Presented) A method according to Claim 65, wherein the filtering of each pixel value is based on a plurality of adjacent pixel values; the first filtering algorithm using a current pixel value as part of a data set including the plurality of adjacent pixel values.

69. (Previously Presented) A method according to Claim 68, wherein the first filtering algorithm implements the following:

sorting the current pixel value and the plurality of adjacent pixel values into a rank order based upon predetermined criteria; and

modifying the current pixel value with respect to its rank in the rank order.

70. (Previously Presented) A method according to Claim 69, wherein the current pixel value is modified if its rank is greater than a predetermined maximum rank value or less than a predetermined minimum rank value.

71. (Previously Presented) A method according to Claim 70, further comprising:

replacing the current pixel value by a pixel value having the predetermined maximum rank value if the rank of the current pixel value is greater than the predetermined maximum rank value;

replacing the current pixel value by a pixel value having the predetermined minimum rank value if the rank of the current pixel value is less than the predetermined minimum rank value; and

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leaving the current pixel value unchanged if the current pixel value has a rank less than the predetermined maximum rank value and greater than the predetermined minimum rank value.

72. (Previously Presented) A method according to Claim 71, wherein the predetermined maximum rank value is a highest ranking of the plurality of adjacent pixel values, and the predetermined minimum rank value is a lowest ranking of the plurality of adjacent pixel values.

73. (Previously Presented) A method according to Claim 65, wherein storing locations of the defective pixel values is based upon an output of the first filtering algorithm.

74. (Previously Presented) A method according to Claim 73, wherein a pixel value is determined to be defective based on a magnitude of a difference between a current pixel value and a pixel value corresponding to the output of the first filtering algorithm.

75. (Previously Presented) A method according to Claim 74, wherein location of at least one pixel value having a greatest difference in magnitude from the output of the first filtering algorithm is stored in the memory for each frame of video data.

76. (Previously Presented) A method according to Claim 65, wherein the filtering of each pixel value is based

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on the plurality of adjacent pixel values; and the second filtering algorithm excludes a current pixel value from a data set including the plurality of adjacent pixel values.

77. (Previously Presented) A method according to Claim 76, wherein the second filtering algorithm replaces the current pixel value with a median value of the plurality of adjacent pixel values.

78. (Previously Presented) A method according to Claim 65, wherein the storing comprises storing a defect value corresponding to a magnitude of the defect exhibited by each defective pixel value.

79. (Previously Presented) A method according to Claim 78, further comprising updating contents of the memory using a predetermined memory management algorithm.

80. (Previously Presented) A method according to Claim 79, further comprising updating the defect value of each defective pixel value based upon an auto-regression function applied to a current pixel value of each defective pixel location stored in the memory, a current output from the second filtering algorithm and a current stored defect value.

81. (Currently Amended) A method according to Claim 65, wherein the first and second filtering algorithms are applied to the video data ~~steam~~ stream in parallel, and a final output pixel value is selected from outputs of the first and second filtering algorithms depending on whether a

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corresponding pixel location is stored in the memory.

82. (Previously Presented) An apparatus for processing a video data stream comprising:

an electronic imaging device;

a first filter circuit connected to said electronic imaging device for filtering the video data stream in real time for correcting/modifying defective pixel values, the video data stream comprising a series of pixel values corresponding to pixel sites in said electronic imaging device;

a sampling circuit connected to said first filter circuit for sampling the video data stream to obtain a data set comprising a current pixel value and a plurality of adjacent pixel values;

a ranking circuit connected to said sampling circuit for sorting the plurality of adjacent pixel values into a rank order based upon predetermined criteria;

a comparator connected to said ranking circuit for comparing a current pixel value with the plurality of adjacent pixel values of selected ranks, and for generating a first filter output based upon the comparison; and

a median circuit connected to said ranking circuit for determining a median value of the plurality of adjacent pixel values and for generating a second filter output equal to the median value.

83. (Previously Presented) An apparatus according to Claim 82, further comprising a memory connected to said comparator for storing pixel locations selected based upon the

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first filter output.

84. (Previously Presented) An apparatus according to Claim 83, further comprising an output circuit connected to said median circuit, said ranking circuit and said memory for generating a final output pixel value selected from the first and second filter outputs based upon contents of said memory.